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# A Global Review on Peri-Urban Development and Planning

Johan Woltjer<sup>1</sup>

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**Abstrak.** Wilayah perkotaan di seluruh dunia semakin menghadapi tantangan pertumbuhan metropolitan yang sangat dinamis, dan pada saat yang sama, perubahan kelembagaan seperti desentralisasi dan globalisasi. Perubahan-perubahan semacam ini tampak nyata pada kawasan peri-urban, tempat bertemunya kehidupan perkotaan dan perdesaan. Secara khusus kawasan peri-urban ini telah menjadi tempat bagi transformasi fisik, sosial dan ekonomi yang pesat. Berdasarkan kajian literatur, artikel ini mengidentifikasi karakteristik umum peri-urbanisasi dan bagaimana perencanaan pembangunan menanggapinya. Tiga karakteristik umum yang diidentifikasi: ruang peri-urban (ungkapan ruang dari pembangunan peri-urban), kehidupan peri-urban (tampilan fungsional dari tata guna lahan, aktivitas peri-urban dan inovasi), dan perubahan peri-urban (perspektif kausal dan temporal yang meliputi aliran dan penggerak perubahan). Diperlihatkan pula bahwa umumnya tanggapan kelembagaan perencanaan dan pembangunan gagal untuk menanggapi karakteristik peri-urbanisasi global yang dinamis dan semakin terfragmentasi.

**Kata kunci.** Peri-urbanisasi, pertumbuhan metropolitan, kapasitas kelembagaan, globalisasi

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**Abstract.** Urban regions worldwide are increasingly facing the challenge of dealing with highly dynamic metropolitan growth and, at the same time, institutional changes like decentralisation and globalisation. These kinds of changes express themselves most evidently in peri-urban areas, where urban and rural life meets. These peri-urban areas in particular have been the stage for rapid physical, social and economic transformations, both in developed and developing countries. Peri-urbanization takes place here. Based on literature review, this paper presents an effort to identify generic attributes of peri-urbanisation and the way in which development planning tends to reply. Three major attributes are identified: peri-urban space (the spatial expression of peri-urban development), peri-urban life (the functional appearance of land uses, activities and peri-urban innovation), and peri-urban change (a causal and temporal perspective featuring flows and drivers of change). It is also shown that prevalent institutional replies in planning and development generally fail to acknowledge the dynamic and increasingly fragmented attributes of global peri-urbanisation.

**Keywords.** Peri-urbanisation, metropolitan growth, institutional capacity, globalisation

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## Introduction

Generally, peri-urban areas have resulted from the extension of urban activities beyond existing administrative boundaries in urban regions. Peri-urbanisation can be defined as “a process in which rural areas located on the outskirts of established cities become more urban in character, in physical, economic, and social terms, often in piecemeal fashion” (Webster, 2002, p. 5). It has been characterised by changing local economic and employment structures from agriculture to manufacturing, rapid population growth and migration, rising land values and mixed land use.

At first glance, processes of peri-urbanization in the world (e.g., in developed and developing countries) seem highly diverse. Urbanization in developed countries has been related to issues like international economic competition, urban welfare, regionalization processes and increasing urban population coupled with rural population decline. Urbanization in developing countries has shown attributes like rural urban migration, natural population increase, and rural urbanization.

Peri-urbanisation is particularly strong in urban regions in developing countries. As specific issue for Indonesian cities, for example, has been decreasing population growth at the core followed by spreading urban population to peripheral areas, including new towns (Firman, 2004). Metropolitan growth has resulted in a physical phenomenon called “desakota” (peri-urban areas with a mixture of agricultural and non-agricultural activities). This kind of physical change is also common to urban regions in China, for example. Chinese cities have shown an outwards, suburban movement of housing and industrial development (e.g., Pengjun et al, 2009). In Asian cities, peri-urbanization involves a shift from rural towards urban life (e.g., Hudalah et. al., 2007).

A specific characteristic for peri-urbanisation in Europe has been the transition from distinctive cities, toward broader urban regions. Phenomena like interactions between firms, housing markets and mobility patterns have expressed themselves increasingly at the regional scale. Metropolitan coordination has become a dominant level for understanding peri-urban change and planning (e.g., Salet and Woltjer, 2009). Also in the US, the emphasis on urban regions is evident, but it also displays some unique features like the management of urban containment and urban sprawl.

Urbanisation processes in developing countries have been commonly recognized to differ from those in developed countries. The history of urban growth, the extent to which urban and rural areas are separated, the role of transportation, communication and information technology, economic development they all vary widely globally (e.g., McGee, 1991; Aguilar, 2008). Some broader variations in peri-urban development, following the distinction between developed and developing countries are concisely listed in Table 1.

## Establishing Generic Attributes

There is a considerable amount of empirical studies on peri-urbanisation in specific regions and cities. However, there have been no distinct efforts to establishing a global account, and looking to bringing “north and south” perspectives together. This article sets out to point to a set of more generic attributes of peri-urban areas. This paper is a review of international literature to topic, focusing on peri-urban development and also development and planning practice from case-studies worldwide. It aims to provide guidance towards a generic understanding of peri-urbanisation and its planning. It sets out to identify generic features of the peri-urban.

**Table 1.** Variations in Peri-Urban Development

Developed countries: (north)	<ul style="list-style-type: none"> <li>▪ increasing urban population and rural population decline</li> <li>▪ international economic competition</li> <li>▪ urban wellbeing and welfare</li> </ul>
Developing countries: (south)	<ul style="list-style-type: none"> <li>▪ regionalization processes in broader urban regions</li> <li>▪ natural population increase and rural urbanization</li> <li>▪ decreasing urban population at core</li> <li>▪ peri-urbanisation is particularly strong</li> <li>▪ mixture of agricultural and non-agricultural activities</li> <li>▪ shift to urban life and dispersed urban sub-centers.</li> </ul>

The central idea is that peri-urban areas distinguish themselves globally. Issues like rapid growth, and mixed physical, environmental, economic and social strains emerge in these areas in a variety of ways, but they also display clear commonalities as well. As made clear in this brief overview, peri-urban areas are subject to an exceedingly intense compound of globally induced pressures. In essence, these areas contribute to economic growth, and take on significant urbanization and population growth. At the same time, these kinds of pressures may well compromise spatial and environmental qualities, and the capability of city regions to propose policy solutions.

The article focuses on these kinds of characteristics, and seeks to identify common themes in dealing with peri-urban areas world-wide. The main objective is to classify, and suggest linkages between generic manifestations of the peri-urban and related institutional replies. Our approach to reaching this goal is a selective literature review. This review is based on articles and books available through “Scopus”, a database of scientific literature. The database was employed by means of entering key words related to varying terminology on peri-urban development, including “peri-urban”, “urban fringe”, “urban-rural”, “city region”, “metropolitan area” and “urban periphery”. A first list database of 1,954 was then reduced to only include peer-reviewed articles, books and some scientific reports that discussed peri-urban development directly (229 remained), after which a final selection of 60 was used for this article. Obviously, the issues adopted in the paper may not be altogether disjunct. It was decided to only adopt issues when they were repeatedly encountered in some way, for both developed and developing countries, setting an agenda for a strengthened generic, and specifically north-south understanding of the peri-urban.

The paper now moves to a discussion of the dimensions on peri-urban development under observation. Section 3 discusses spatial manifestations, followed an overview in Section 4 of uses and activities. Section 5 examines flows and drivers of change. Institutional replies to peri-urban development are given in Section 6. We finalise with concluding remarks in Section 7.

### **Spatial Manifestations**

An inherent ingredient of the international debate on peri-urban development has been its spatial manifestation, and in particular its morphological and physical appearance. Our literature review shows four key emphases in efforts to characterise and clarify peri-urban space.

A first and, arguably, prevailing emphasis is to see peri-urban areas and their development in terms of the *urban-rural interplay*. Peri-urban areas, then, may be defined as a transition zone between urbanized land in cities and predominantly agricultural areas (e.g., Rakodi, 2002).

Authors like Adell (1999) see peri-urban development in intermediate places between city and countryside. These places represent a territory with combinations of features, largely generated from activities in the urban center, and occurring near and on previously agricultural land.

A term used in literature on North Africa and South Asia has been “peri-urban interface”, which again accentuates peri-urban space as an intermediate between urban and rural activities (Allen, 2003; Mattingly, 1999; Simon et al., 2004). This emphasis also talks about the merger of urban and rural, at least in terms of a closer coexistence between agricultural and non-agricultural activities in urban regions. McGee (1991) invented the term “desakota” (Indonesian for city-village, or urban-rural) for this merger, which also encapsulates the increasing indistinctness of city-country boundaries and urban-rural divides.

Clearly, location and situatedness on the urban fringe is the obvious characteristic here (Kurz and Eicher, 1958). Peri-urban areas are located beyond the city, in, essentially, rural area. In addition, the literature refers to mixes of urban and rural land use in the urban fringe. References to this archetypal characteristic are abundant, as is the acknowledgement that contrasts between the central city as a market-place and its rural, agricultural hinterland have never been categorical. Peri-urban areas have always existed (Thomas, 1990). The massive scope in which they emerge during the last decades, however, particularly in developing countries, is a more recent emphasis.

A second, straightforward emphasis in the literature is *urban expansion*. In African and also numerous Asian countries, urban development is characterized by physical growth which extends beyond metropolitan and city boundaries, into the urban fringe, and disseminates from city centers in all directions (Firman, 2009). In North American cities, urban sprawl has led to suburban development and the emergence of so-called Edge Cities. Edge cities are clusters of businesses, shops, and entertainment facilities beyond conventional urban area, and typically a part of previous residential suburbs or semi-rural communities (Garreau, 1991). Also in Europe an increasing amount of peripheral locations display dynamic urban attributes, similar to those in CBDs (Riguelle et al., 2007).

In East Asia, peri-urban areas and peri-urbanisation have been emerging challenges for planning cities and regions (Hudalah, et al., 2007). Estimates from our literature review indicate that about 40% to 70 % of all urban population inhabit peri-urban areas in Eastern Asia (Webster, 2002), thereby consuming large portions of land. The magnitude of Asian cities, including their peri-urban zones can stretch up to 300 kilometres away from formal city boundaries, and are growing at a much faster pace than the core city area. It is also a magnitude that is beyond typical African peri-urban interfaces, which on average fall within 30-50 kilometres beyond existing urban limits (Trefon, 2009).

The academic focus on peri-urban development as a manifestation of basic urban expansion is classic. The literature makes several references to German city development, and the work on the Berlin “fringe belt” (Stadtrandzone) by Herbert Louis in the 1930s (Thomas, 1990). A main characteristic of this notion is that European peri-urban areas emerge from physical limitations for urban growth in the urban core, for example because of city walls and protected green space. At the same time, the periphery of existing cities would offer the availability of land against relatively low prices, while essential economic and social services of the larger city are still accessible and nearby.

These remarks lead us to a related spatial manifestation: the *connectivity* of peri-urban areas to their urban center. The main idea from the literature here is that peri-urban activities are generated largely by activities within the core city (Adell, 1999). This emphasis is again particularly European of nature, and assumes that urban centre connectivity is important for any choice of urban land use (Harvey, 1987; Kivell, 1993). City centres are seen as the focus for labour, transport and retail markets. These insights believe that urban expansions in the fringe of major cities are subservient to the core city.

From this perspective, peri-urban development can be explained in terms of access to labour markets or proximity to the urban core from residential areas. For European migrant workers, job opportunities in the urban centre and relatively easy connections to the city maybe reasons for their peri-urban settlement location (Sieverts, 2003). In the same sense, industrial estates located in the periphery of major cities may consider amenities, services and the skilled labour pool for their access to the central city. In fact, most people living in housing estates on the fringe of East-Asian cities are working in the core city (Webster, 2002).

A more recent debate in the academic literature points to a reconsideration of the core-periphery connectivity argument (e.g., Hoggarth, 2005). The idea is that flows of people, goods and communication are directly interconnected, and may easily bypass the conventional city center as its meeting point. The classical distinction between the city and its periphery is seen as indistinct (Sassen, 1991). Urban development in the last decades has not only changed the position of urban cores, but has also resulted in a new urban landscape with regional hubs. Peri-urban areas may then be seen as new central locations, rather than “areas on the edge” (Fishman, 2000). For a city like Jakarta these areas may include “post-suburban elements” like hi-tech industrial locations (Hudalah and Firman, 2011). It is also clear from this kind of literature that the idea of centrality has broadened (Sieverts, 2003). Peri-urban areas, are, in essence, increasingly independent and may form a “city” of their own. The idea of connectivity to the city centre has played a decreasing role in defining the spatial manifestation of peri-urban development.

This discussion of urban-rural interplay, urban expansion and connectivity leads us to a most recent emphasis in the literature: peri-urban areas and their development as *complex systems* of dynamic change. Among others, Allen (2003) defines the peri-urban interface a complex mosaic of rural, urban and natural sub-systems. These systems are integrated, for example through their socio-economic function, and driven by change (Simon et al., 2004). In addition, there are intensive flows of natural resources, goods, investment, ideas and people from, to, and within the peri-urban system (e.g., Browder and Bohland, 1995), leading to both contextually specific and longer term structural innovation.

This kind of literature emphasises that peri-urban areas often consist of a large array of different functions, depending not only on demographic and geographic features, but on socio-economic changes as well. Sieverts (2003, p. 3) assumes this holistic view in the following description of a peri-urban system: “A structure of completely different urban environments which at first sight is diffuse and disorganized with individual islands of geometrically structured patterns. A structure without a clear centre, but therefore with many more or less sharply functionally specialized areas, networks and nodes.” McGee (2008) sees various land-uses, activities and also flows of change (internal and external) to form an inherent part of the urban system, which needs to be holistically considered.

The identification of dynamic change in peri-urban areas (ranging from, for example, externally induced economic changes like manufacturing and tourism, to internal resilience capacities like investment levels and political stability) is central to the complex system perspective. Rauws and De Roo (2011), for example, have shown how the development of urban-rural relationships in several European city regions may be viewed from a systems and complexity perspective, thereby examining interrelations in these areas and also the influence of changes external to peri-urban systems themselves. Overall, for this kind of literature, rapid and spatially differentiated urbanization patterns have created multi-faceted, and also dynamic, transition zones at the fringes of cities world-wide (Simon, 2008). The peri urban area is no longer considered as the area “in between” two forces (urban and rural). Instead, it is believed that dynamic developments are at play, making the whole system, i.e. peri-urban area, a complex set of relationships (Gallent et al., 2006).

### **Uses, Activities and Innovation**

In addition to its spatial manifestation, peri-urban development also represents a collection of uses and activities of peri-urban space. This section discusses the most apparent uses and activities from the literature, thereby establishing an overview of functional aspects of peri-urban life.

A first aspect is related to the urban-rural interplay emphasis from our previous section. A substantial part of the literature reports on *economic changes* in the peri-urban areas, generally demonstrating a shift from an agriculturally-based to a manufacturing dominated economy, or shifting towards economic activities of higher productivity (Allen, 2003). There is a blurry divide between urban and rural life, and increasingly a mix of urban and rural economic activity (Lin, 2001). A clear recognition from literature sources is that agricultural activities do not disappear under urban pressures, but, rather, endure and transform. In various cases from developing countries peri-urban agriculture continues to play a critical role for the livelihood of people.

While many studies in the 1980s and 1990s have perceived peri-urban areas in developing countries, particularly in Africa, as agglomerations of poverty and informal economic activity (e.g., Browder and Bohland, 1995), Asian and South American inquiries have emphasized more recently that large scale land and property development typifies global peri-urbanisation (Goldblum and Wong, 2000; Leaf, 2002). Peri-urban areas function as centres of industrialisation, regional economic development, and middle to high-income residential development. A clear consequence is that the process of “land conversion” from rural land to urban land uses occurs rapidly, extensively, and largely uncontrolled, with significant impact on rural economic conditions. Rural land conversion tends to bring considerable impacts: loss of agricultural employment, loss of prime agricultural land, reduced food production, and declining investments in infrastructure for irrigation.

An important second aspect in the literature is the phenomenon of *social and functional decomposition* within peri-urban areas (Hoggart, 2005). A generic feature is that cities spread rapidly, but not equally in all directions. Especially in developing regions in Asia, Latin America and Africa, problems of inequality and conflict may prevail. Rural livelihoods can be under increasing pressure, while the countryside is increasingly facing an expansion of the urban sphere (Zoomers, 2002), with different demands for employment, housing and services. In Latin America, these kinds of pressures commonly translate into disorganized land markets and chaotic development (Laquinta and Drescher, 2010), with land fragmentation and social

exclusion as a possible result. In Africa, peri-urban zones are prospective places for disease outbreaks and other social hazards due to their general lack of planning and institutional integration (Chirisa, 2010). There are also important processes related to the environment, including agricultural decline, dispersed patterns of urban occupations, illegal settlements, disposal of solid and toxic waste, and environmental stress on green and recreational area (Aguilar, 2008; Douglas, 2006).

An important related aspect is spatial distribution and segregation. The general picture of a case like the peripheral expansion of Mexico City is that migrants are concentrated in the periphery, including large districts with poverty and lacking basic services, while rich areas with middle class residents occupy the most attractive places (Aguilar et al, 2003). Mexico City has decentralized to a polycentric pattern with relatively independent sub-centres. At the same time, a segregated distribution of population, income, and services has emerged.

Spatial segregation may be the result of informal settlement by migrants moving to the city in search of employment, the promise of emancipation, or a better life (Sieverts, 2003). Peri-urban areas may offer to these groups the benefits of the city, but also the fruit of a modest, semi-urban, agricultural economy. Segregation also expresses itself at the high-income end, in the form of high class residential development. Also here socio-economic segregation is the consequence, with “gated communities”, physically separated from their poorer neighbouring communities by walls and fences, as clear examples all around the developing world (Firman 2004; Leisch, 2002). Large-scale enclave development projects have permeated, in particular, American, but also peri-urban areas in major Asian metropolitan regions. European peri-urban areas may be less segregated perhaps, but also display contrasts between wealthy and deprived communities. Segregation is also a fundamental factor to urban sprawl and peri-urban development in Beijing, China (Pengjun, 2012). The Beijing case shows a considerable impact of urban sprawl (including gated communities and low-density residential development) on social segregation. There is a separation between low-income and high-income residents, and between local residents and migrants.

A third aspect pertinent to peri-urban development globally is the *urban identity* of those involved. This issue is particularly common to European studies on peri-urban development. Agriculture, for example, plays a role as an identity builder for processes of urban expansion in the Alpine corridor area in France (Fleury, 2005). The issue of identity has a long history, which can be identified in the literature through references to German sociologist Ferdinand Tönnies, among others, and his distinction between rural social association (*Gemeinschaft*), characterized by territorial union, personal relations and homogeneity, and a more individual urban society (*Gesellschaft*) with more formal social relations.

A contemporary emphasis has been on the phenomenon of “mental urbanisation” (Driessen et al., 1995). Mental urbanisation symbolizes the transfer of norms and values from urban residents to their broader rural environment through patterns of communication and information exchange (e.g., Sassen, 2002). A conventional character of peri-urban space may still be determined by a rural identity, i.e., a space for agricultural production. An urban identity is more likely based on aspects like the value, personal use and amenities of the rural landscape (Evans and Shaw, 2001). Peri-urbanization, then, also is a process in which rural areas located on the outskirts of established cities become more urban in character through the frame of mind and the “mental condition of urbanity” (Salet, 1996) of their residents.



A final, fourth aspect of peri-urban life recurrently found in the international literature is *spatial innovation*. The enhancement of the urban-rural fringe, for example, may include the introduction of innovations like eco-industries or transport technologies for mass transit (e.g. Han et al., 2011). Other authors have emphasised emerging creativity and innovation in peri-urban areas. Established spatial characteristics like the outward moving of the richer segment of urban population, and the physical encounter of new development and rural communities show that socio economic transformations are abundant. Winarso et al (2002) have shown for the Indonesian case that these areas are the stage for more concentrated pockets of creativity and innovation. Land-use innovations include clustered development, environmentally friendly land uses, traditional markets in a modern context, and shopping and food arcade development. More institutional innovations include new policy coordination platforms, and small services (household appliances, car and motor car businesses, room rentals). The literature shows further discussion into generic and global innovations like urban agriculture, agro-tourism, and leisure and amenities (Yanga, 2010; Zasada, 2011).

### **Flows and Drivers of Change**

In the previous sections we have clarified structural issues discussed in the international literature on peri-urban space and peri-urban life. This section takes a more temporal and causal perspective, to look at flows and drivers of change.

One of the most apparent drivers of change in the literature is the extent to which peri-urbanisation is powered by *global capital* decisions, in particular foreign direct investment (FDI). The general idea is that rapid changes on the fringes, particularly in large Asian cities, emerge from the forces of globalization. Above all, global capital is seen as an influential factor for urban growth (Wu and Radbone, 2005). Webster (2002) has shown that global capitalism in the form of FDI, particularly in manufacturing, has concentrated in areas with substantial capacities of vacant land, accessibility to a central city, and availability of cheap labour (also see Leaf, 2002). Global capital through FDI, therefore, may be seen as one of the main triggers for large scale peri-urbanisation. FDI primarily seeks opportunities for locating manufacturing plants in peri-urban areas, due to possibilities for lower production cost, the availability of large plots of land, and the possibility to group manufacturing firms in accessible industrial estates.

A related point is that a globally operating group of larger property developers may significantly influence the magnitude of peri-urban development in major metropolitan regions (Winarso and Firman, 2002; Sajor, 2003). These private developers tend to have powerful positions, as they own global portfolio's, decide on investments internationally, and are less rooted locally (e.g., Jones, 2009).

A second emphasis in the literature is to see peri-urban areas as a place influenced by a *multitude of land use claims*. This emphasis is a classic one, and incorporates activities associated with both rural and urban forces, varying from manufacturing to tourism (Pryor, 1968). Clearly, besides manufacturing, the development of residential areas is a recurring issue in the literature on rural-to-urban land conversions in peri urban areas. Drivers for residential development include the attractiveness of peri-urban land in terms of lower pollution, traffic congestion and a higher level of individual safety. Another driver is that cheap agricultural land can be acquired for the sole purpose of speculation. Obviously, also new land uses associated with the innovations listed previously lead to multiple land-use claims, including urban agriculture (Péron and Geoffriau, 2007), tourism and leisure facilities, infrastructure, and services provisioning (Ricci, 2012).

Webster (2011) clarifies land use claims through a distinction between centrifugal urban forces (i.e., outward, away from the center towards the peri-urban) and centripetal urban forces (i.e., drawn towards the centre). Centrifugal urban forces occur due to manufacturing, congestion, ring roads, low-priced land, and cultural preferences. Centripetal urban forces are attributable to services, tourism, rapid transit, energy costs, redevelopment opportunities, and cultural preferences. A subsequent list of generic land-use claims includes FDI driven manufacturing belts, satellite cities, spread and envelopment, and amenities (including leisure and tourism).

### **Institutional Replies**

The previous three sections have established a synopsis of principal and generic attributes of peri-urban development. Manifestations of *peri-urban space* revolve around aspects like urban-rural interplay, urban expansion, and the connectivity between urban center and its periphery. The functionality of *peri-urban life* has been expressed in terms of global economic changes, the social and functional decomposition from development, the spread of urban life and identity, and various spatial innovations. The flows and drivers of *peri-urban change* are seen typically to emerge from global capital decisions and the increasing multitude of land use claims. This section will now report on the emphases in the international literature on peri-urban development, from an institutional perspective. The focus is on institutional structures, i.e. policies, rules, regulations and coordination arrangements for guiding peri-urban behaviour.

A first practice is about efforts to *strengthen the capacities of local government*. A well-established view is that peri-urban development occurs through the weaknesses or, conversely, direct support from local government agencies, particularly for rapid peri-urban transformations in East Asia (Leaf, 2002). It is clear that government capacity, both in terms of financial and human capital, is generally deficient, and may be contributing to inconsistencies in implementation and weak enforcement and control (Firman, 2000). The role of the local public sector in urban planning and development is also weak in comparison to the private sector (Connell, 1999).

A key problem is the lack of mechanisms for inter-regional coordination and inter-sectoral integration, for example in China (Pengjun et al., 2009). Many countries are trying to deal with fragmented institutional landscapes, particularly at the regional level. Peri-urban regions worldwide, therefore, face the problem of a mismatch between the nested jurisdictions of governmental administration and the increasing dynamics of urban space. New urban dynamics often occurs at the outer ring of urban centres, beyond municipal urban boundaries and urban agglomerations. The territorial boundaries of regions usually do not match the scales and scopes of the new urban dynamics. As a result, formal and informal cooperative arrangements between municipalities are increasingly established. Accordingly, local government capacities tend to focus on strengthening collaborative approaches and interactive governance (Hudalah et al., 2007). A fundamental institutional arrangement for collaborative approaches is that local government agencies establish wider alliances with private developers and financiers, and negotiate the externalities their development projects generate (like traffic flows, or environmental impacts), and use them to finance public facilities nearby, like roads or green space (e.g., Rybeck, 2004).

A common institutional reply in the literature is that of *integration and comprehensiveness*. There is attention for the integration of efforts to promote agriculture, recreation, to protect biodiversity, reduce housing pressure and stimulate comprehensive land use planning. Comprehensiveness in terms of issues and interests (across sectors) has become a clear focus

point (Aalbers et al., 2011). “Good governance” is generally seen as an approach for guaranteeing better social and economic performance and less environmental degradation (Aguilar, 2008).

A key point is that spatial planning has traditionally reinforced the division of city and rural area through urban containment policies (e.g., Gallent, 2006). Planning regulations like urban growth boundaries, urban clustering schemes or compact development rules aim to concentrate development within city lines to prevent overspill into green areas, and protect rural land. However, the practice of separating land uses like green (nature), red (urban), yellow (agriculture), and blue (water) tends to contradict with the dynamic character of many peri-urban areas. All kinds of newer models for peri-urban planning intervention, therefore, particularly in Europe and the United States, have been directed towards combining or “packaging” varying interests and issues, in regional plans or regional agreements, and to the benefit of the area as a whole.

The emphasis on integration and comprehensiveness has been particularly important for road and infrastructure development, for example when roads should be connected to other land uses like business parks or broader transportation network systems. Individual developers are less likely to be able to integrate individual projects with the broader infrastructure required for their peri-urban accessibility (Dijkgraaf, 2000). The issue is paramount for peri-urban planning as roads (and highways) represent to a large extent the level of connectivity between peri urban areas and the core city (McGee, 2008). The key recognition is that road and highway access is the main indicator of accessibility from the peri-urban to the urban core, and, therefore, should be a central part of policy making.

Literature references to institutional arrangements for peri-urban development also emphasise the need for *regional or metropolitan coordination*. The example on Mexico City, for example, shows a metropolis with stabilizing demographic growth combined with an enormous peripheral expansion. Territorial expansion in this case is substantial, but, perhaps more importantly, efforts to establish metropolitan coordination have generally failed an issue also characteristic to other urban regions in the world. The issue is that there is no single authority for the city region as a whole. The generic characteristic, therefore, may be that extended urban areas typically do not share the same authority. While urban core areas generally are under the authority of a municipal government, peri-urban areas might be run in a regulatory way by adjacent districts. Fragmented coordination is the result, which in turn could entice fragmented urban development, and a lack of coherencies in land-uses. In his work on urban sprawl in Beijing, Pengjun (2012) points to impeding institutional factors to rural-urban integration and regional coordination. In this specific case land registration mechanisms and a tradition of decentralised development management are barriers to metropolitan coordination.

A widespread aspiration, therefore, has been to establish (informal) regional coordination platforms or more formal regional government agencies in an effort to integrate peri-urban areas with their urban core, for economic, social, demographic, and environmental aspects (e.g., Simon et al, 2004). Informal coordination (like agreement making between local politicians) and also self-organisation (by citizens, NGOs and/or business owners) is thought to contribute in a supplementary way to more formal coordination efforts at the regional and cross-municipal level.

A fourth reply to peri-urban development has included efforts for *rescaling or adapting administrative boundaries*, as peri urbanisation often extends beyond city borders. The problem

is that planning and development across local authority boundaries is typically restricted due to differences in authorities, identity and public funding. The key idea for this reply is to try to rescale coordination through drawing expanded boundaries, merge existing municipalities, or establish a new regional authority of some kind. The fundamental idea is that it would be useful for peri-urban areas to also administratively be a part of the functional urban region as a whole (e.g., Anderson, 2002). Decisions on, for example, work and residence, on mobility and infrastructure or on waste collection and processing can be then made in an integrated way for both the core city and its peri-urban area.

A related point in particularly the American literature is that of urban area as a tax base. Public services like the provision of water, sewage systems, solid waste collection and other infrastructures all depend on regional tax collections and may therefore be difficult to provide beyond the administrative region. An important reason for concern about peri-urban development in the United States, therefore, has been the reduction of the inner-city tax base (Munroe, 2010). At the same time, there has been a concern about the preservation of agricultural land, and necessary enhancement of economic policy tools.

Boundaries and issues of rescaling are also central to other work on peri-urban development like Dijk et al (2011), who discusses the question how administrative boundary arrangements are linked to land use choice in the urban fringe. Examples range from Portland (the urban fringe is subject to a patchwork of independent city governments and counties), to Dortmund (urban fringe is a part of an integrated regional government), and Rotterdam and The Hague (urban green area forms an independent municipality). These kinds of examples confirm the significant role boundaries and administrative structures have on essential peri-urban challenges like residential development and green space.

## Concluding Remarks

This article set out to establish an overview of generic dimensions to peri-urban development. A classification of dimensions has been established on the basis of an extensive literature review. Our review has distinguished between three evident situational dimensions: *peri-urban space* (the spatial expression of peri-urban development), *peri-urban life* (the functional appearance of land uses, activities and peri-urban innovation), and *peri-urban change* (a more causal and temporal perspective featuring flows and drivers of change). In addition, a collection of prevalent institutional replies were laid down. All these dimensions are given in Table 2.

Table 2 reveals a series of remarkable ties between situational issues and current institutional replies for peri-urban development. One aspect is the increasing acknowledgement of dynamic change in conjunction with flows of people, capital and investment external to the peri-urban and metropolitan system itself. Many situational issues emerge from board rooms and markets beyond specific peri-urban areas themselves. Clearly, these dynamic influences are not covered by the institutional replies currently discussed in the literature, and may well lead to intensifying challenges in future peri-urban planning and development to accommodate global pressures and demands for, particularly, property development, multi-functional land-use claims (red and green combined), and higher productivity economic activity in the years to come.

**Table 2.** Generic Attributes of Peri-Urban Development and Planning

	Situational issues; the peri-urban area and:	Institutional replies; peri-urban development and:
Spatial manifestations (PERI-URBAN SPACE)	<ul style="list-style-type: none"> <li>▪ urban-rural interplay (transitions between urbanized and agricultural land, merger of urban and rural activities)</li> <li>▪ urban expansion (growth into urban fringe, Edge Cities, land consumption, limitations in urban core vs. opportunity in periphery)</li> <li>▪ connectivity to urban centers (peri-urban activities generate from center, mobility and accessibility to urban core, peri-urban areas as new regional hubs)</li> <li>▪ complex systems of dynamic change (rural, urban, natural and socio-economic sub-systems, intensive flows, contextually specific and longer term structural innovation)</li> </ul>	<ul style="list-style-type: none"> <li>▪ strengthening local government capacities (building financial and human capital, inter-regional coordination, interactive governance, alliances with private actors)</li> <li>▪ integration and comprehensiveness (inter-sectoral integration, “good governance”, “packaging” interests and issues, road and highway accessibility, concentrated development)</li> </ul>
Uses, activities and innovation (PERI-URBAN LIFE)	<ul style="list-style-type: none"> <li>▪ economic change (from agricultural to manufacturing and activities of higher productivity, mixes of urban and rural economic activity, land conversion)</li> <li>▪ social and functional decomposition (inequality and conflict, land fragmentation, social segregation, environmental stress, neglect, unplanned development, gated communities)</li> <li>▪ urban identity (rural society, ‘mental urbanisation’, agricultural production vs. personal amenities)</li> <li>▪ spatial innovation (socio economic transformation, urban agriculture, agro-tourism, leisure)</li> </ul>	<ul style="list-style-type: none"> <li>▪ regional or metropolitan coordination (establishment of regional platforms, formal and informal, at regional and cross-municipal level)</li> <li>▪ rescaling or adapting boundaries (matching and merging territorial boundaries of regions to urban dynamics and authorities, and tax base)</li> </ul>
Flows and drivers of change (PERI-URBAN CHANGE)	<ul style="list-style-type: none"> <li>▪ global capital decisions (foreign direct investment, global property regimes)</li> <li>▪ multitude of land use claims (attractiveness of peri-urban land, centrifugal and centripetal urban forces)</li> </ul>	

Another notable linkage is that capacity building activities and the focus on regional coordination still shows a clear orientation towards an urban agenda in peri-urban development. A focus on connectivity to urban centres, on accessibility and accommodating growth does not demonstrate a clear recognition of rural space. The literature on peri-urban development is essentially urban, also in the sense that rural space is reflected, as a rule, as an element of personal value, well-being and attractiveness.

Furthermore, the overview exposes more recent changes in the focus on connectivity and accessibility. Peri-urban areas are increasingly perceived as independent places, thereby bypassing conventional city centers as a central connection and place of assembly. Also upcoming innovations like agro-tourism, leisure and integrated business parks and new market places emphasize an emerging independence of the urban fringe. It seems that policy initiative

and related institutional arrangements do already reflect this kind of a change to some degree, although rescaling and regional coordination efforts also are still motivated by a view on the urban region as a whole. A more selectively integrated (not fully comprehensive), causal, and project-based approach to the integration of peri-urban issues would then be useful as an institutional reply.

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